



Smart Slot™

5 Port  
10Base-T Hub

AP9615

**APC**®

# Thank You!

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Thank you for selecting the APC SmartSlot 5 Port 10Base-T Hub (AP9615). It has been designed for many years of reliable, maintenance-free service in combination with your American Power Conversion (APC) uninterruptible power supply (UPS). APC is dedicated to the development of high-performance electrical power conversion and control products. We hope that you will find this product a valuable, convenient addition to your computing system.

**Please read this manual!** It provides important safety, installation, and operating instructions that will help you get the most from your SmartSlot hub.

**Save this manual!** It includes instructions for obtaining warranty service.

## Radio frequency interference

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**WARNING:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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# Introduction

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## Overview

The SmartSlot™ 5-Port 10Base-T Hub is an APC accessory that allows you to expand or create a local area network (LAN) by installing it in the SmartSlot of an APC UPS or expansion chassis.

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## Features of the 5 Port 10Base-T Hub

The following list shows some of the features of the 5 Port 10Base-T Hub. Your hub...

- Installs easily into any SmartSlot-equipped APC UPS or expansion chassis, thus minimizing clutter.
  - Has 4 station ports and 1 uplink port.
  - Can be used to create a stand-alone, 5-station, 10Base-T network or can expand an existing 10Base-T network by 4 stations.
  - Is powered by the host APC UPS or accessory.
  - Has LEDs that show information on the hub's power status and the presence of data collisions.
  - Has LEDs on each port that indicate the presence of traffic, link, and partitioning.
- 

## Hardware requirements

The 5 Port 10Base-T Hub requires:

- An APC UPS or expansion chassis with an available SmartSlot.
  - A configured 10Base-T port for each device to be attached.
  - An unshielded twisted pair (UTP) communication cable for each device to be attached. (See “Communication cables” on page 4 for more information.)
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# Product Description

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## Front panel

This figure shows the front panel of the 5 Port 10Base-T Hub. The features of the front panel are described in the paragraphs that follow.

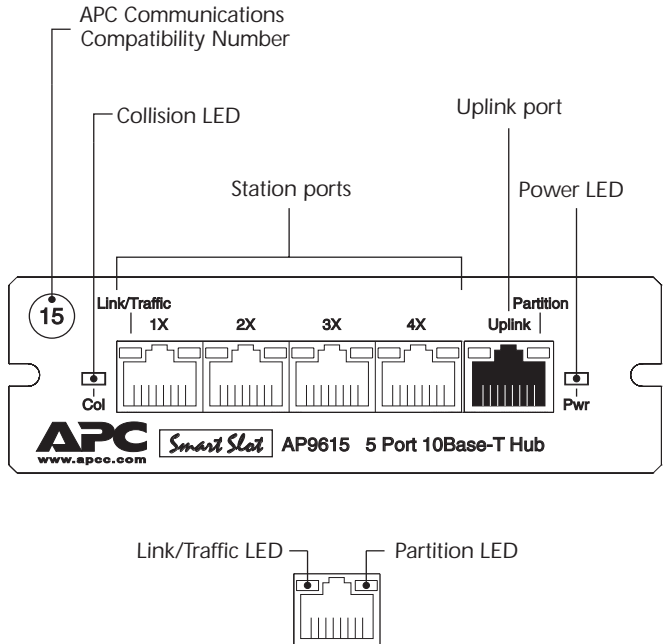


Figure 1: Front Panel and Connector Detail

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## APC Communications Compatibility Number

The APC Communications Compatibility Number (CCN), which appears on the upper left corner of the front panel, refers to the ability of an accessory to work with other APC products. (The CCN for your hub may be different from the example shown in Figure 1.) In general, we strive to make all APC products compatible with one another; however, if you want specific information on the compatibility of the 5 Port 10Base-T Hub with APC UPSs and accessories, visit the APC support page (<http://www.apcc.com/support/#kbase>) and search for Communications Compatibility Number.

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# Product Description *continued*

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## LEDs

The LEDs provide important information concerning operation of the hub and each of its ports. Refer to the table below for a description of the conditions indicated by LEDs.

<b>Label</b>	<b>Color</b>	<b>Activity</b>	<b>Description</b>
Pwr	Green	On	The hub is receiving power.
Col	Yellow	Blinking	The network is experiencing data collisions. Note that occasional collisions are normal.
Link/ Traffic	Green	On	The link between the port and the connected device is good.
		Blinking	The port is receiving data.
Partition	Yellow	On	The port has been partitioned because of an excessive frequency of collisions. The partition condition will automatically clear when the connected device begins operating properly.

*Table 1: Description of LEDs*

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# Product Description *continued*

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## Station ports

The Station ports are the first 4 RJ-45 ports, which are labeled 1X–4X. The Station ports use straight-through UTP cables to connect the hub with:

- Workstations or other non-hub devices that you want to include in your network.
- The Uplink port of another hub in a cascading configuration.

*Note: A Station port acts as an Uplink port when it is used with a crossover cable.*

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## Uplink port

The Uplink port is normally used in either of the following ways, as shown in Figure 2.

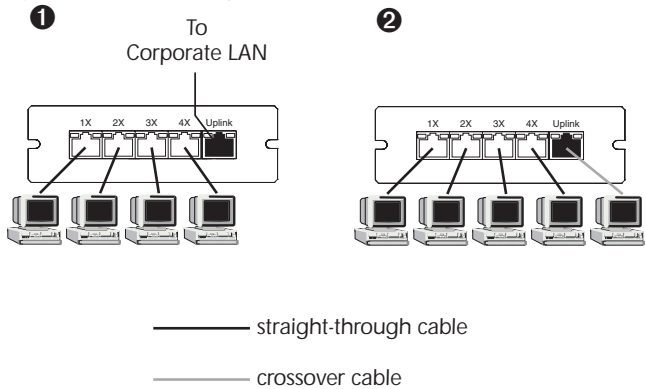


Figure 2: Dual Use of the Uplink Port

- ① Connected in cascade with a Station port of another hub or switching device, using a straight-through cable.
  - ② Connected to a workstation or other non-hub device, using a crossover cable.
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## Communication cables

The hub requires a category 3, 4, or 5 UTP 10Base-T communication cable for each device to be attached.

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# Installing the Hub

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## Warning



Do not operate the 5 Port 10Base-T Hub where conditions are outside the limits listed in “Product Specifications” on page 14.

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## Installing on critical systems

The installation procedure that follows may involve shutting off power from the UPS. However, if your setup requires maintaining power to connected equipment throughout installation, visit the support page on our Website (<http://www.apcc.com/support/#kbase>) and follow the appropriate procedure in *Installation Instructions for APC Management Accessories on Critical Systems*.

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## Installation procedure

To install the 5 Port 10Base-T Hub, perform the following steps in the order given.

**Note:** *The Smart-UPS, Matrix-UPS, Symetra Power Array, Smart-UPS DP, and Triple Chassis for Silcon require different procedures to turn off the UPS or device that will host the hub.*

- 1 To turn off the UPS or device that will host the hub, follow the appropriate procedure listed below:

### ***Smart-UPS®***

- a Shut down and power off the connected equipment.
  - b Press and hold the UPS’s Power Off button until you hear a click or until the UPS’s power LED extinguishes.
  - c Unplug the UPS from the AC power outlet.
  - d Press and hold the UPS’s Power Off button until you hear a click (hold for at least 5 seconds).
- 

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# Installing the Hub *continued*

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Installation  
procedure,  
continued

## ***Matrix-UPS™***

- a Shut down and power off the connected equipment.
- b Turn off the circuit breaker on the bottom left side on the back panel of the UPS.

## ***Symmetra™ Power Array™***

- a Shut down and power off the connected equipment.
- b Turn off the System Enable switch on the bottom left side on the back panel of the UPS.

## ***Smart-UPS® DP***

- a Shut down and power off the connected equipment.
- b Turn off the ON/OFF switch on the front panel.

## ***Triple Chassis for Silcon DP300E Series UPSs***

- a Shut down and power off the connected equipment.
  - b If present, unplug the Triple Chassis's power supply from the AC power outlet.
  - c Disconnect the cable attached to the To UPS port on the Triple Chassis.
- 2 Unpack the 5 Port 10Base-T Hub. The shipping materials are recyclable. Please save, reuse, or dispose of them appropriately.



**Handle the 5 Port 10Base-T Hub by the front panel. Do not touch the exposed printed circuit board or components. Touching the circuit board or components may result in damage to the hub.**

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# Installing the Hub *continued*

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## Installation procedure, continued

- 3 Use a #2 Phillips head screwdriver to remove the 2 screws fastening the SmartSlot cover plate to the back panel of the UPS or triple chassis. Keep the screws for Step 5 below. Save the SmartSlot cover plate for future use (e.g. shipping the UPS).
- 4 Orient the hub to fit into the SmartSlot. Slide the hub all the way into the slot until its front panel is flush with the back panel of the UPS or triple chassis. Observe the correct orientation as shown in Figure 3. Note that the sides of the circuit board align with the card guides of the SmartSlot.

*Note: While it is not possible to install the hub upside down, it is possible to damage the unit in the attempt to do so.*

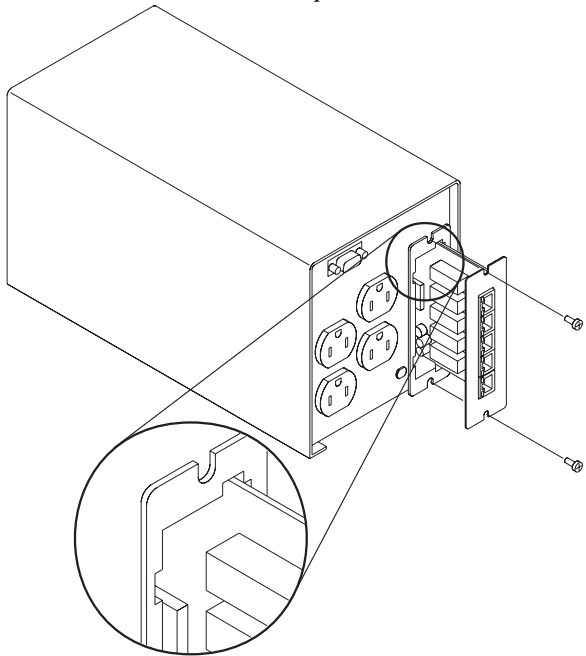


Figure 3: Orient the hub to fit into the SmartSlot.

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# Installing the Hub *continued*

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## Installation procedure, continued

- 5 Secure the hub with the screws removed in Step 3.
- 6 Using straight-through UTP cables, connect the Station ports (1X–4X, in any order) to each workstation's 10Base-T port or to the Uplink port of a hub to be connected in cascade. (See Figure 2 on page 4.)
- 7 Connect the Uplink port, if applicable:
  - *If connecting to another hub:*
    - Use a straight-through cable to connect to a Station port. (See Figure 2 on page 4.)
    - Use a crossover cable to connect to the Uplink port. (See Figure 4 on page 10.)
  - *If connecting the Uplink port to a workstation or other non-hub device:*
    - Use a crossover cable. (See Figure 2 on page 4.)
- 8 Turn on the UPS or device that now houses the hub. To turn on the UPS or device, follow the appropriate procedure listed below:

### ***Smart-UPS***

- a Plug the UPS back into the AC power outlet.
- b Press and hold the Power On button until you hear a click and beep or until the power LED illuminates.
- c Power on the connected equipment.

### ***Matrix-UPS***

- a Turn on the circuit breaker on the bottom left side on the back panel of the UPS.
- b Turn on the UPS via the front panel.
- c Power on the connected equipment.

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# Installing the Hub *continued*

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Installation  
procedure,  
continued

## ***Symmetra Power Array***

- a Turn on the System Enable switch on the bottom left side on the back panel of the UPS.
- b Turn on the UPS via the PowerView display.
- c Power on the connected equipment.

## ***Smart-UPS DP***

- a Turn on the ON/OFF switch on the front panel.
- b Power on the connected equipment.

## ***Triple Chassis for Silcon DP300E Series UPSs***

- a Attach the cable to the To UPS port on the Triple Chassis.
- b If applicable, plug the Triple Chassis's power supply into the AC power outlet.
- c Power on the connected equipment.

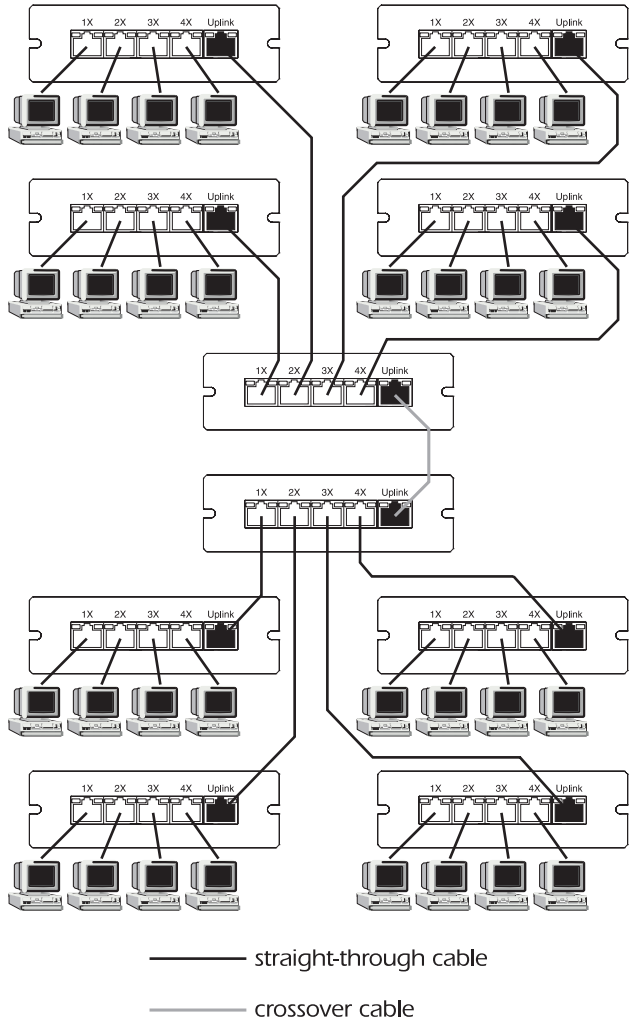
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# Installing the Hub *continued*

## Maximum configuration

Using a star configuration, you can cascade up to ten 5 Port 10Base-T hubs together to provide network connections for as many as 32 stations, as shown below in Figure 4. Note the use of a crossover cable to connect the Uplink ports of the 2 central hubs.



— straight-through cable

— crossover cable

Figure 4: Cascading Hubs in a Star Configuration

# Removing the Hub

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## Removal procedure

To remove the 5 Port 10Base-T Hub, perform the following steps in the order given.

- 1 Disconnect all cables from the hub.
- 2 Turn off the UPS or device that houses the hub. (For detailed instructions, see “Installation procedure” on page 5.)
- 3 Use a #2 Phillips head screwdriver to remove the 2 screws fastening the hub to the UPS or triple chassis. Keep the screws for Step 6 below.
- 4 Carefully grasp the sides of the hub’s front panel and gently pull the hub from the SmartSlot.



**Handle the 5 Port 10Base-T Hub by the front panel. Do not touch the exposed printed circuit board or components. Touching the circuit board or components may result in damage to the hub.**

- 5 Place the hub into its original packaging or other static-safe material.
  - 6 Replace the SmartSlot coverplate (removed during installation of the hub) with the screws removed in Step 3.
-

# Troubleshooting

## Troubleshooting suggestions

Table 2 provides suggestions for troubleshooting your hub.

LED	Action	Cause	Solution
Col	Blinking	Normal data collisions on the network.	No action is necessary.
Col	Blinking excessively	Data collisions are occurring because of a high volume of traffic on the network.	Make sure connected devices are not operating in full-duplex mode; they must operate in half-duplex mode.  Segment the network with an Ethernet switch.
		Cables used to connect to the network are defective or of the wrong type.	Verify that the cable is of the correct type. See “Communication cables” on page 4 for more information.
Link/ Traffic	Off (even with a cable attached)	Successful link is not being detected by the port.	Verify that the hub and the connected device are powered.  Verify that the cable is of the correct type. See “Communication cables” on page 4 for more information.  Inspect cables for damage, cable pairs to see if they are wired correctly, and connectors to see if they are loose.

Table 2: Suggestions for Troubleshooting

*Continued on next page*



# Troubleshooting *continued*

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Troubleshooting suggestions, continued

<b>LED</b>	<b>Action</b>	<b>Cause</b>	<b>Solution</b>
Partition	On	32 consecutive collisions have caused the port to partition.	Check that the correct cable is in use and verify that the connected equipment is set to operate at 10 Mbit and half-duplex mode.  As collisions reduce, the port reconnects and the Partition LED turns off.

*Table 2: Suggestions for Troubleshooting, continued*

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# Specifications

## Product specifications

The following table shows the product specifications for the 5 Port 10Base-T Hub.

Item	Specification
<b>Power</b>	
Input voltage range:	18–30 VDC
Maximum current draw:	45 mA
<b>Physical</b>	
Size (H × W × D):	1.46 × 4.75 × 4.30 in (3.7 × 12.1 × 10.9 cm)
Weight:	0.25 lb (0.11 kg)
Shipping weight:	0.65 lb (0.30 kg)
<b>Environmental</b>	
Elevation (above MSL): Operating Storage	0 to 10,000 ft (0 to 3000 m) 0 to 50,000 ft (0 to 15 000 m)
Temperature: Operating Storage	32 to 122°F (0 to 50°C) 5 to 158°F (-15 to 70°C)
Relative humidity: Operating Storage	0 to 95%, non-condensing 0 to 95%, non-condensing
<b>Approvals/Standards</b>	
FCC, Part 15, Class B EN 55 022 (CISPR 22), Class B VCCI Class 2 IEC 1000-4-2, 3, 4 CE C-Tick IEEE 802.3 10Base-T Port Configuration: Station Ports are MDI-X, Uplink port is MDI	

Table 3: Product Specifications

# Warranty Information

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## Limited warranty

American Power Conversion (APC) warrants the 5 Port 10Base-T Hub to be free from defects in materials and workmanship for a period of 2 years from the date of purchase. Its obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. This warranty does not apply to equipment which has been damaged by accident, negligence, or misapplication or has been altered or modified in any way. This warranty applies only to the original purchaser.

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## Warranty registration

To register your product with APC, visit our Warranty Registration Web page. (<http://www.apcc.com/support/warranty>)

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## Warranty limitations

Except as provided herein, American Power Conversion makes no warranties, express or implied, including warranties of merchantability and fitness for a particular purpose. Some jurisdictions do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

Except as provided above, in no event will APC be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of this product, even if advised of the possibility of such damage.

Specifically, APC is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, costs of substitutes, claims by third parties, or otherwise. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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## Warranty Information *continued*

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### Obtaining service

To obtain service for your 5 Port 10Base-T Hub, follow this procedure:

- 1 Note the serial number and date of purchase of the hub. (The serial number is located on the top, interior surface of the hub's front panel.)
- 2 Contact APC Customer Support at the phone number or address on the back cover of this manual.
- 3 Be prepared to provide a description of the problem. A technician will help solve the problem over the phone, if possible, or will give you a return material authorization (RMA) number.
- 4 If the hub is under warranty, repair or replacement is free of charge. If the warranty has expired, there will be a nominal charge for repair or replacement.
- 5 Pack the hub carefully in its original packaging, if possible. Do not use polystyrene beads for packing. Damage sustained in transit is not covered under the warranty. Enclose a letter in the package with your name, address, RMA number, a copy of the sales receipt, daytime phone number, and check (if applicable).
- 6 Mark the RMA number clearly on the outside of the shipping carton. The service center will not accept any materials without this marking.
- 7 Return the hub by insured, prepaid carrier to the address given to you by APC Customer Support.

# Declaration of Conformity

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**Application of Council Directives** 89/336/EEC

**Standards to Which Conformity is Declared** EN55022: 1995, Class B  
EN50082-1: 1992, including:  
IEC 1000-4-2: 1995  
IEC 1000-4-3: 1995  
IEC 1000-4-4: 1995  
FCC Part 15, Class B  
VCCI, Class 2

**Manufacturer's Name and Address** American Power Conversion  
132 Fairgrounds Road  
West Kingston, Rhode Island 02892  
USA

—or—

American Power Conversion (A.P.C.) b.v.  
Ballybritt Business Park  
Galway, Ireland

**Importer's Name and Address** American Power Conversion (A.P.C.) b.v.  
Ballybritt Business Park  
Galway, Ireland

**Type of Equipment** UPS Accessory Equipment

**Model Numbers** AP9615

**Serial Numbers** RA9901D00000–RA0001D99999

**Years of Manufacture** 1999, 2000

We, the undersigned, hereby declare that the equipment specified above conforms to the above directives.

St. Louis, MO, USA

**Place**

June 24, 1999

**Date**



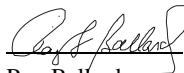
Ted Eckert  
Regulatory Compliance Engineer

Galway, Ireland

**Place**

June 24, 1999

**Date**



Ray Ballard  
General Manager, Galway



**Toll-free Customer Support:**

U. S. & Canada	1-800-800-4272
Austria	0660 6480
Belgium	0800 15063
Czech Republic	0 800 102063
Denmark	800 18 153
Finland	9800 13 374
France	0 800 906 483
Germany	01300818907
Holland	0800 0224655
Hungary	00800 12221
Ireland	1 800 702000 x 2045
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Italy	1678 74731
Japan	0120-80-60-90
Luxembourg	0800 2091
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Portugal	050 553182
South Africa	0800 994206
Spain	900 95 35 33
Sweden	020 795 419
Switzerland	0800 556177
Turkey	0800 35390275
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**Areas without toll-free numbers:**

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- +353 91 702020 (Ireland)
- +7095 916 7166 (Russia)

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Japan	jsupport@apcc.com
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